

## ABSTRACT

Recombinant pox viruses capable of expressing an immunogenic fragment of the MUC1 tumor-associated antigen are disclosed. The recombinant viruses can be used as vaccines to prevent the establishment of or treat tumors or pre-tumorous cells expressing the MUC1 tumor-associated antigen. The vaccines can be provided as an admixture comprising: (1) a recombinant pox virus encoding the immunogenic fragment of the MUC1 tumor-associated antigen, and (2) a recombinant pox virus encoding a T-cell co-stimulatory factor. The vaccine admixture can be used, e.g., to prevent establishment of tumors or pre-tumorous cells expressing the MUC1 tumor-associated antigen. The MUC1 specific cytotoxic T-cells can be isolated and expanded and used in a method for treating a host having a tumor expressing MUC1 positive tumor cells.

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